

PENDING CLAIMS AS AMENDED

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A[[n]] wireless communication device apparatus, comprising:  
a connection table for storing one or more connection identifiers, wherein a connection identifier corresponds to a Packet Coordination Function (PCF) that has been previously visited by the wireless communication device;  
a receiver for receiving a connection identifier;  
a processor for delivering the received connection identifier to the connection table for storing when the received connection identifier is not contained in the connection table; and  
a transmitter for sending a registration in response to the received connection identifier when the received connection identifier is not contained in the connection table.
2. (Cancelled).
3. (Currently Amended) The wireless communication device apparatus of claim 1, further comprising a timer, wherein the processor removes a connection from the connection table in response to an expiration of the timer.
4. (Currently Amended) The wireless communication device apparatus of claim 3, wherein the processor resets the timer in response to transmission by the transmitter on the connection associated therewith.
5. (Currently Amended) The wireless communication device apparatus of claim 3, wherein the processor clears the connection table when a connection is received corresponding to a Packet Data Serving Node (PDSN) that is different from a PDSN corresponding to a previously stored connection.
6. (Currently Amended) The wireless communication device apparatus of claim 3, wherein the processor clears the connection table when a clear table message is received by the receiver.

7. (Currently Amended) A[[n]] Packet Data Serving Node (PDSN) apparatus, operable with a plurality of PCFs via a corresponding plurality of connections, each PCF operable to communicate with one or more wireless communication devices, the PDSN apparatus further operable with a network for directing data for transmission to one or more wireless communication devices, comprising:

a connection table for storing a plurality of connection sets, each connection set comprising one or more connections associated with a wireless communication device, wherein a first timer in the PDSN and a second timer in the wireless communication device correspond to each of the connections and wherein the first timer is set to expire after the second timer;

a processor for selecting a connection from the one or more connections in a connection set associated with a wireless communication device for which data is directed from the network; and

a buffer for receiving data from the network that is designated for delivery to a wireless communication device, storing the received data until the wireless communication device is located on one of the connections in the connection set and transmitting the stored data on the selected connection to the wireless communication device.

8. (Cancelled).

9. (Currently Amended) The Packet Data Serving Node (PDSN) apparatus of claim 7, wherein an active connection identifier is stored in the connection table to identify zero or one active connection for each wireless communication device.

10. (Currently Amended) The Packet Data Serving Node (PDSN) apparatus of claim 9, wherein the processor selects all of the connections associated with a wireless communication device for transmission to the wireless communication device when no connection for the wireless communication device is identified as active.

11. (Currently Amended) The Packet Data Serving Node (PDSN) apparatus of claim 9, wherein the processor selects a subset of the connections associated with a wireless

communication device for transmission to the wireless communication device when no connection for the wireless communication device is identified as active.

12. (Currently Amended) The Packet Data Serving Node (PDSN) ~~apparatus~~ of claim 9, wherein the processor selects the most recent active connection from the connections associated with a wireless communication device for transmission to the wireless communication device when no connection for the wireless communication device is identified as active.

13. (Currently Amended) The Packet Data Serving Node (PDSN) ~~apparatus~~ of claim 9, wherein the processor selects one or more connections randomly from the connections associated with a wireless communication device for transmission to the wireless communication device when no connection for the wireless communication device is identified as active.

14. (Currently Amended) The Packet Data Serving Node (PDSN) ~~apparatus~~ of claim 7, further comprising a plurality of timers corresponding to the plurality of stored connections, wherein the processor removes a connection from the connection table upon expiration of one of the plurality of timers associated with the connection.

15. (Currently Amended) The Packet Data Serving Node (PDSN) ~~apparatus~~ of claim 14, wherein the processor resets one of the plurality of timers in response to an activity indicator associated with the mobile station on the corresponding connection.

16. (Currently Amended) A[[n]] Packet Coordination Function (PCF) ~~apparatus~~, operable with a PDSN and a plurality of wireless communication devices, comprising:

a connection identifier;

a receiver for receiving a transmission from a wireless communication device, wherein the wireless communication device includes a connection table, wherein the connection table stores the connection identifier if the PCF has been previously visited by the wireless communication device;

a processor for establishing a connection with the PDSN associated with the wireless communication device in response to a received transmission containing a registration, wherein

the received transmission includes the registration in response to the connection identifier when the connection identifier is not included in the connection table;

a first transmitter for sending an inactive message to the PDSN on the connection when a pre-determined time period has lapsed since a transmission is received from the mobile station.

17. (Currently Amended) The Packet Coordination Function (PCF) apparatus of claim 16, further comprising a second transmitter for transmitting a clear table message to the wireless communication device when the PDSN is different from a PDSN identified in a received transmission from the wireless communication device.

18. (Currently Amended) A wireless communication system, comprising:

a wireless communication device for receiving a connection identifier, storing the received connection identifier in a connection table, and transmitting a registration when the received connection identifier is not contained in the connection table, wherein the connection identifier corresponds to a Packet Coordination Function (PCF) that has been previously visited by the wireless communication device;

a Packet Coordination Function (PCF) for receiving a transmission from the wireless communication device and initiating a PDSN connection in response to a received transmission containing a registration; and

a Packet Data Serving Node (PDSN) for establishing a PDSN connection with the PCF, associated with the wireless communication device, in response to a PDSN connection initiation, storing the connection in one of a plurality of connection sets in a connection table, each connection set comprising one or more connections associated with a wireless communication device.

19. (Original) The wireless communication system of claim 18, wherein the PDSN further selects a connection from the one or more connections in a connection set associated with a wireless communication device for transmission of data directed to the wireless communication device.

20. (Currently Amended) A method of registering and maintaining connections, comprising:

receiving a connection identifier;  
registering a connection in response to a received connection not contained in a connection table; and  
storing the received connection identifier in the connection table when the connection is not contained in the connection table, wherein the connection identifier corresponds to a Packet Coordination Function (PCF) that has been previously visited by the wireless communication device.

21. (Original) The method of claim 20, further comprising removing a connection from the connection table in response to expiration of an associated timer.

22. (Original) The method of claim 20, further comprising:  
receiving a clear table message; and  
clearing the connection table in response to the clear table message.

23. (Currently Amended) A method of registering and maintaining connections, comprising:  
establishing one or more connections with one or more PCFs;  
storing a plurality of connection sets in a connection table, each connection set comprising one or more connections with a PCF and associated with a wireless communication device;

buffering received data from a network that is designated to a wireless communication device, storing the received data until the wireless communication device is located on one of the connections in the connection set; [[and]]

selecting a connection from the one or more connections in a connection set associated with a wireless communication device for which data is directed and transmitting the stored data on the selected connection to the wireless communication device; and

maintaining a plurality of first timers that correspond to each of the connections and wherein each of the plurality of first timers are set to expire after each of a plurality of second timers in the wireless communication device.

24. (Cancelled).

25. (Original) The method of claim 23, further comprising maintaining a plurality of timers corresponding to the plurality of stored connections and removing a connection from the connection table upon expiration of one of the plurality of timers associated with the connection.

26. (Currently Amended) A method of registering and maintaining connections, comprising:  
providing a connection identifier;

receiving a transmission from a wireless communication device, wherein the wireless communication device includes a connection table, wherein the connection identifier corresponds to a Packet Coordination Function (PCF) and the connection table stores the connection identifier if the PCF has been previously visited by the wireless communication device;

establishing a connection between a PCF and a PDSN associated with the wireless communication device in response to the received transmission when it contains a registration, wherein the received transmission includes the registration in response to the connection identifier when the connection identifier is not included in the connection table; and

transmitting an inactive message to the PDSN on the connection when a predetermined time period has lapsed since a transmission is received from the mobile station.

27. (Original) The method of claim 26, further comprising transmitting a clear table message when the PDSN is different from a PDSN identified in a received transmission from the wireless communication device.

28. (Currently Amended) An apparatus, comprising:

means for receiving a connection identifier;

means for storing the received connection identifier in a connection table when the connection is not contained in the connection table, wherein a connection identifier corresponds to a Packet Coordination Function (PCF) that has been previously visited by the apparatus; and

means for registering a connection in response to a received connection not contained in the connection table.

29. (Currently Amended) An apparatus, comprising:

means for establishing one or more connections with one or more PCFs;

means for storing a plurality of connection sets in a connection table, each connection set comprising one or more connections with a PCF and associated with a wireless communication device, wherein a first timer in the apparatus and a second timer in the wireless communication device correspond to each of the connections and wherein the first timer is set to expire after the second timer;

means for buffering received data from a network that is designated to a wireless communication device;

means for storing the received data until the wireless communication device is located on one of the connections in the connection set;

means for selecting a connection from the one or more connections in a connection set associated with a wireless communication device for which data is directed; and

means for transmitting the stored data on the selected connection to the wireless communication device.

30. (Currently Amended) An apparatus, comprising:

means for providing a connection identifier;

means for receiving a transmission from a wireless communication device, wherein the wireless communication device includes a connection table, wherein the connection table stores the connection identifier if the apparatus has been previously visited by the wireless communication device;

means for establishing a connection between a PCF and PDSN associated with the wireless communication device in response to the received transmission when it contains a registration, wherein the received transmission includes the registration in response to the connection identifier when the connection identifier is not included in the connection table; and

means for transmitting an inactive message to the PDSN on the connection when a pre-determined time period has lapsed since a transmission is received from the mobile station.

31. (Currently Amended) A computer program embodied on a computer readable media operable to perform the following steps:

receiving a connection identifier;

storing the received connection identifier in a connection table when the connection is not contained in the connection table, wherein the connection identifier corresponds to a Packet Coordination Function (PCF) that has been previously visited by a wireless communication device; and

registering a connection in response to a received connection not contained in the connection table.

32. (Currently Amended) A computer program embodied on a computer readable media operable to perform the following steps:

establishing one or more connections with one or more PCFs;

storing a plurality of connection sets in a connection table, each connection set comprising one or more connections with a PCF and associated with a wireless communication device, wherein a first timer in a PDSN and a second timer in the wireless communication device correspond to each of the connections and wherein the first timer is set to expire after the second timer;

buffering received data from a network that is designated to a wireless communication device;

storing the received data until the wireless communication device is located on one of the connections in the connection set;

selecting a connection from the one or more connections in a connection set associated with a wireless communication device for which data is directed; and

transmitting the stored data on the selected connection to the wireless communication device.

33. (Currently Amended) A computer program embodied on a computer readable media operable to perform the following steps:

providing a connection identifier;

receiving a transmission from a wireless communication device, wherein the wireless communication device includes a connection table, wherein the connection table stores the



connection identifier if the apparatus has been previously visited by the wireless communication device;

establishing a connection between a PCF and a PDSN associated with the wireless communication device in response to the received transmission when it contains a registration, wherein the received transmission includes the registration in response to the connection identifier when the connection identifier is not included in the connection table; and

transmitting an inactive message to the PDSN on the connection when a predetermined time period has lapsed since a transmission is received from the mobile station.